Research on Environmental Cost Control Methods of Coal Enterprises under the Background of Big Data

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Abstract- The coal industry plays a vital role in the rapid development of China's social economy. However, under the pressure of sustainable economic development, the profit margin of coal companies is relatively low. In order to increase the profitability of coal companies and maximize their economic benefits, we need to strengthen cost control. In recent years, the main research on cost control of coal enterprises includes logistics supply chain, inventory structure and value chain model optimization. These studies did not study the cost control methods of coal enterprises from the direction of environmental cost control. In the context of big data, coal companies need to accelerate their transformation and upgrading, relying on data platform systems to carry out environmental cost control in the development of coal companies. Only in this way can the sustainable development of coal enterprises be promoted.

1 Cost Structure of Coal Enterprises

In the development process of coal enterprises, its large cycle costs need to analyze the cost consumption and cost compensation issues from the cycle process of the entire material world. And coal itself is a resource. When analyzing its cost structure, we can include it in the recycling cost. Based on the theory of sustainable development, we need to ensure environmental quality and resource quality in the process of promoting the development of the coal industry to promote a virtuous circle of resource consumption and compensation. Only in this way can the sustainable development of coal enterprises be promoted. There are certain restrictions on the storage of coal resources. In order to promote the orderly development of coal enterprises, we need to improve the cost compensation mechanism for coal products. Therefore, we must conduct a comprehensive analysis and understanding of the cost composition of coal enterprises. Only by accurately understanding the various cost components of coal companies in the development process can we accurately grasp the main role of coal companies' environmental costs and take effective measures to reasonably control coal companies' environmental costs.

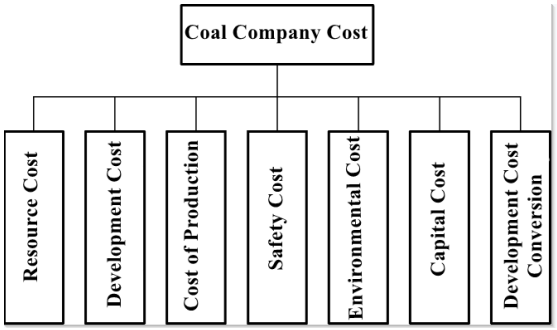

Figure 1: Cost Structure of Coal Enterprises

The main costs include the following aspects. First, the cost of resources. The resource cost in the development process of coal enterprises mainly refers to the expenses paid for obtaining the mining rights of the resource. Among them, it is mainly taxation, which includes mineral resource tax and administrative fees. Administrative charges generally refer to the main manifestation of the state's ownership of coal resources, including mineral resource compensation, prospecting rights price, mining right price, mining right use fees, mining area use fees and mining registration fees, etc. Second, development costs. The capital needed to invest in exploration design and infrastructure construction in order to be able to obtain coal resources is the development cost. It generally includes geological exploration fees, mining area design fees and mine construction fees. Third, production costs. In the coal production process, the products produced and the expenditures for other products are all production costs. It generally includes employee salaries, utilities, depreciation, fuel, and materials. Fourth, security costs. In the production process of coal enterprises, the

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expenses paid to ensure production safety are safety costs. The main function of safety costs is to avoid risks in the coal production process and to improve the level of coal production safety and asset investment. Fifth, environmental costs. In the production process of coal enterprises, it will cause certain damage to the ecological environment of the mining area, and the funds invested in order to solve the environmental problems and compensate for the damage to the ecological environment of the mining area are the environmental costs of coal. Generally, the environmental costs of coal companies include environmental testing fees, environmental impact compensation fees, pollution discharge fees, underground filling fees, tree planting and greening fees, soil reconstruction fees, and environmental protection education fees. Sixth, the cost of capital. This cost mainly refers to the cost of raising and using capital by coal companies. It generally includes expenses incurred in the process of raising funds and using funds. In the process of fund-raising, companies need to pay various expenses. These costs are called financing costs, which include the issuance of stock evaluation fees, notary fees, guarantee fees, advertising fees, etc. And the capital expense refers to the related cost of the corresponding capital occupation by the enterprise. For example, bank loans, bond interest, stock dividends, etc. Seventh, the development cost of conversion. During the development process, coal companies may withdraw from the market due to exhaustion of resources. The capital invested in this process is the development cost of conversion. Conversion development costs include exit costs and conversion costs. Coal resources are inherently non-renewable. Coupled with the limitation of coal reserves, coal companies must make corresponding preparations and personnel placement before switching to production. Exit costs generally include employee placement fees and employee reemployment training fees. The cost of conversion generally includes the construction costs of new mines and the investment expenditures for the development of subsequent industries [1].

2 Problems in Environmental Cost Control of Coal Enterprises

At present, we must strengthen environmental cost control in the long-term development of coal enterprises. Only in this way can the sustainable development of China's coal industry be guaranteed. In the current development of coal enterprises, there are still some problems in environmental cost control. These problems are mainly manifested in the following aspects. Firstly, in the current development of coal companies, many coal companies do not have the awareness of environmental cost control and have not really implemented environmental cost control. When carrying out environmental cost control work, many companies still stay in control of the three wastes. The main purpose is to use an advanced treatment system to reasonably control the pollutants generated during the production process in the mining area, so as to meet the national control standards. Moreover, its treatment method only stays in the treatment of post-pollution, and there are no effective measures to reduce the damage to the ecological environment during the production process in the mining area. Some coal production companies believe that carrying out environmental cost control will have an impact on the economic benefits of the company. In the actual production process, environmental management and restoration work cannot be carried out according to the specific production conditions of the mining area, which affects the long-term development of coal enterprises. Secondly, when carrying out environmental cost control, the scope of control is relatively narrow. When coal companies control environmental costs, there is a concept of end governance, which is inconsistent with the relevant requirements of the concept of sustainable development. During the mining process, coal mining companies will pollute water sources, occupy land resources, pollute the air, and may even worsen land resources, causing disasters such as mudslides and landslides. Therefore, we must pay attention to the cost control in the coal production process. However, at this stage, many coal companies in China have not taken effective preventive environmental protection measures based on the specific conditions of the mining area before coal production. In the actual production process, it does not pay attention to the application of environmental treatment measures and anti-pollution measures. Depreciation has caused serious pollution of the ecological environment by coal mine production and undermined the local ecological balance. Destroyed land resources will take a long time to recover, which will have a great impact on the survival and development of the descendants of local residents. This kind of terminal governance thought of coal enterprises ignores the environmental cost control work. In the process of environmental governance, the investment amount is relatively large and the operating cost is relatively high. Otherwise, this will also have a certain impact on the effect of environmental governance. In the actual environmental cost control process, the enterprise must reasonably control the environmental cost in the procurement stage. We need to take effective measures in the design and construction stages of the mining area to reduce environmental costs as much as possible [2].

3 Improvement of Environmental Cost Control Methods for Coal Enterprises in the Environment of Big Data

We need to improve the environmental cost control methods of coal companies in the context of big data from the following aspects. First, we must change our thinking on environmental cost control of coal enterprises, and use big data technology as the basis to obtain the constraints that exist in the process of environmental cost control of coal enterprises. Only in this way can the environmental cost control methods of coal enterprises be improved and innovated based on these constraints. In the process of applying the big data

cloud accounting platform, we can not only obtain data and dynamic data related to environmental costs, but also analyze and process the relationship between the data, thereby obtaining potentially valuable information. This facilitates the management of coal enterprises to make correct decisions. When analyzing information, we need to extract data and information related to environmental cost accounting from massive data to improve the accuracy of environmental cost accounting. At the same time, we also need to clarify the basic structure of the environmental cost of coal and environmental enterprises, use the activity-based costing method to complete environmental cost accounting tasks, and then effectively apply big data and collect corresponding data indicators. In addition, we also need to integrate and analyze these data indicators so that the company's environmental cost control goals can be achieved. Second, we need to build an environmental cost control system for coal enterprises based on activity-based costing based on the big data cloud accounting platform. In the process of applying the operating cost accounting method, we need to effectively combine cost accounting and cost management. Only in this way can the theory of cost-driving factors be used as the main guiding ideology, and reasonable cost allocation can be made to the sequence of the job consumption resource cost and the target consumption job. In the process of applying the activity-based costing method, we need to understand the resources involved in the environmental cost control process of coal enterprises, the objects that consume the resources, the factors incurring costs, the development of the environmental cost control objectives and the various operating methods, etc. Using the relevant theories of activity-based costing to analyze the specific production process of environmental costs in coal enterprises, it is possible to accurately grasp the specific causes of environmental costs in the development of coal enterprises, so as to accurately allocate environmental costs and expenses, which can improve environmental cost accounting. accuracy. In the application process of the big data cloud accounting platform, we can directly input the resource consumption indicators of coal companies to find environmental cost objects into the cloud accounting platform to reflect the amount of different environmental costs of the company. We can also use data mining and analysis techniques to provide accurate reference information for coal companies' subsequent environmental cost control. Meanwhile, we can also build a coal enterprise environmental cost control system based on activity-based costing in a big data environment. This can also improve the efficiency and quality of environmental cost control of coal enterprises.

4 Big Data Coal Enterprise Environmental Cost Control Process

In the process of production and operation of coal enterprises, it has its own particularity. In particular, the cost structure of coal companies is more complex, and there are many factors that affect the cost of coal companies. If effective cost control is not carried out, it will directly affect the economic benefits of coal enterprises. When researching and analyzing the environmental cost control process of coal enterprises in the context of big data, we need to start from the following aspects to improve the application level of the big data control process as much as possible. Firstly, we need to effectively collect information on the environmental cost of coal. Before environmental costs appear in the development of coal enterprises, we need to collect various information related to environmental costs in advance. In the meantime, we should also compare and analyze a large amount of historical data, and use big data technology to accurately calculate the corresponding cost of environmental costs in the future development of coal companies. In this way, the environmental cost in the normal development process of coal enterprises can be obtained, so as to build a standard environmental cost database, and take it as the main goal of environmental cost control during the development of coal enterprises. Simultaneously, we can also make reasonable arrangements for the environmental expenditures of coal enterprises in the actual development process according to the goals of environmental costs. This can control the environmental cost of the enterprise within a reasonable range and improve the level of enterprise environmental cost control [4]. Secondly, we need to effectively process coal environmental cost data. In order to be able to dynamically manage the environmental costs in the daily production process of coal enterprises and reflect the changes in environmental costs in a timely manner, we can use big data technology to accurately and timely obtain various data information related to environmental costs, and collect the collected data. The data is aggregated into the database. After completing the collection of data and information, we can use data mining tools to effectively process financial data and non-financial data related to environmental costs, so as to obtain environmental cost data during the production process of coal enterprises and the reasons for changes in environmental costs. This is conducive to the subsequent environmental cost control work. Thirdly, we need to analyze the environmental cost data of coal. When completing data analysis, we need to use a large amount of data to calculate and obtain the actual expenditures of the environmental cost objects of coal enterprises based on the data obtained in the previous stage, such as the reasons for environmental cost changes, and the specific conditions of the production cost composition of coal enterprises. Moreover, we also need to compare and analyze the standard environmental costs of coal companies on the cloud accounting platform, and conduct an in-depth analysis of the differences. We should adjust the standard environmental cost data according to the actual situation, or improve the environmental cost expenditure in the actual production process. Fourth, we need to output data on the environmental cost of coal. After completing the production cycle of a coal enterprise, we can use the cloud accounting platform to directly output the environmental cost composition and specific change trends of the coal enterprise, and generate an environmental cost analysis report. According to the

generated cost report, we can analyze the environmental cost expenditure of coal enterprises in the actual production process and the economic benefits obtained by the enterprise in the process of environmental cost control. At the same time, we can compare and analyze the cost analysis report and the environmental cost control targets formulated in advance to find out the specific reasons for the differences. This is conducive to the improvement of the subsequent environmental cost control methods of coal enterprises [5].

5 Conclusion

All in all, in the process of rapid development of big data technology, applying it to the environmental cost control of coal enterprises can improve the environmental cost control level of coal enterprises to a certain extent. Because big data technology can help coal companies obtain various data information related to environmental costs more accurately and efficiently, we can use the cloud accounting platform to organize and analyze various information in a timely manner. This is not only conducive to mining the potential of environmental cost control information for coal enterprises, but also beneficial to environmental cost control strategies based on the specific composition of environmental costs and the reasons that lead to changes in environmental costs. In this way, the environmental cost control level of coal enterprises can also be improved, and the sustainable development of coal enterprises can be promoted.

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